



Fort Stanton-Snowy River Cave
National Conservation Area
Bureau of Land Management

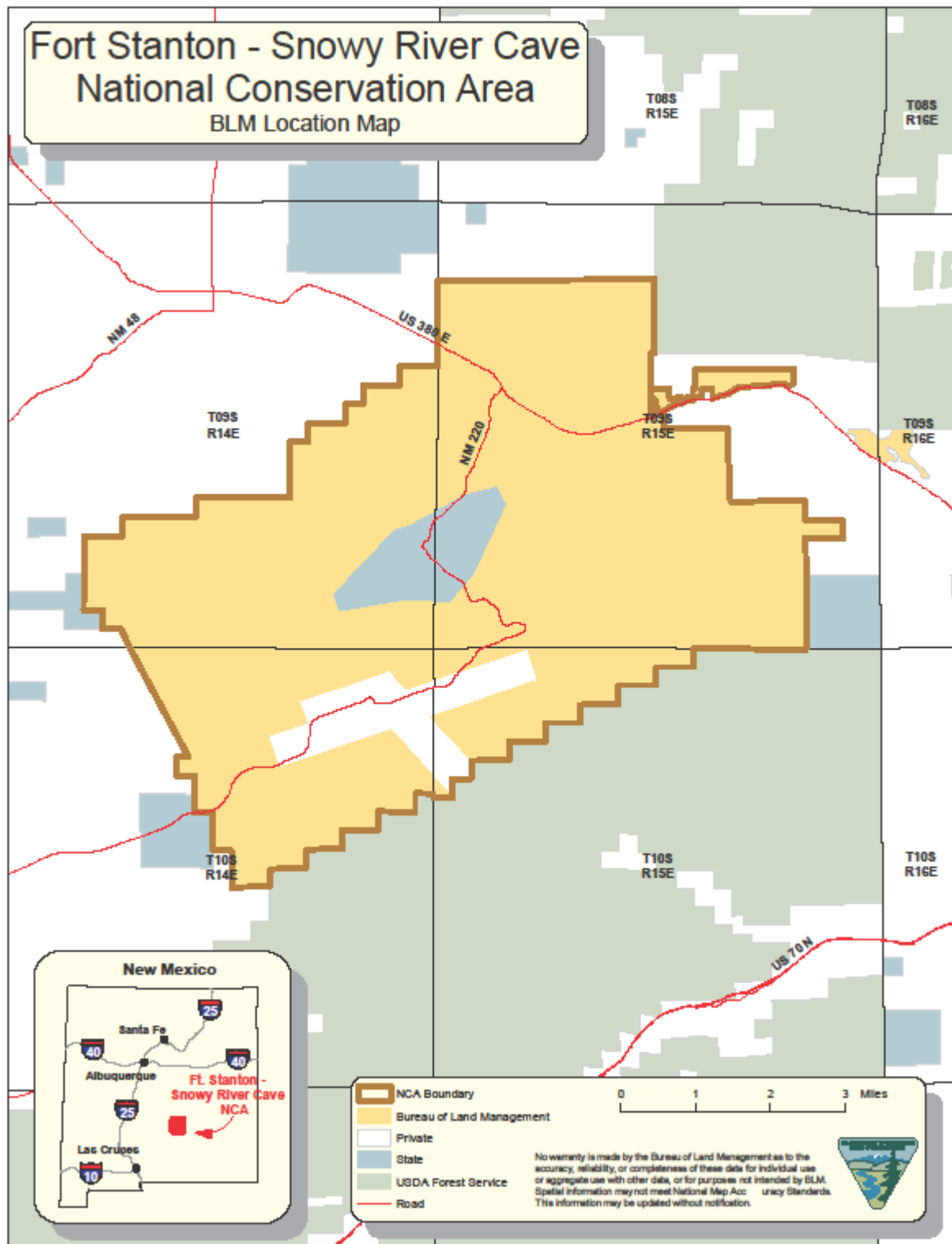
FY 2009 Manager's Report

BUREAU OF LAND MANAGEMENT NATIONAL LANDSCAPE CONSERVATION SYSTEM

Fort Stanton-Snowy River Cave National Conservation Area FY 2009 Manager's Report

Introduction

- Unit: Fort Stanton-Snowy River Cave National Conservation Area
Roswell Field Office
BLM New Mexico State Office
- Contact Information: Roswell Field Office
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Roswell, New Mexico
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www.blm.gov/nm/st/en/prog/recreation/roswell
- Manager: Howard Parman, Acting AFM, Resources/NCA Manager
Howard.Parman@nm.blm.gov
- Established: Public Law 111-11, March 30, 2009
- Acreage: 25,080 BLM acres



SECTION I - NATURAL AND HERITAGE RESOURCES CONDITIONS

Natural Resources Trends

- Upland and riparian conditions are excellent and the trend stable due to the discontinuation of grazing 5 years ago.
- Wildlife populations appear to be stable. The unit was recently designated a youth hunt area thereby reducing pressure on wildlife. Several wildlife drinkers and vegetation restoration projects support wildlife populations in the NCA.
- The Rio Bonito Watershed is listed in the New Mexico 305(b) report as not fully supporting its coldwater fishery due to irrigation uses and is identified as a Category 1 watershed in need of restoration based on the Unified Watershed Assessments conducted by the New Mexico Environment Department as directed by the Clean Water Action Plan. Surface water quantity and quality trend is improving.
- Groundwater is available in the San Andres Aquifer located in the San Andres Formation which underlies the NCA. The groundwater is of good quality and the trend is stable.
- Air quality in the area is considered good; management will continue emphasizing the maintenance of Class II air quality in the Fort Stanton–Snowy River Cave NCA area. BLM-initiated activities, such as prescribed fires are mitigated in order to have minimal effects on air quality and to retain the Class II air quality standard.
- Tamarisk is found within the NCA, but the trend is improving with active treatments of this and other noxious weeds within the unit.

Heritage Resources Trends

- Cultural, paleontological, and historic resource trends are excellent.
- Fort Stanton Cave was designated a National Natural Landmark in 1975 because of its outstanding natural and cultural features. As described throughout this report, the cave is in stable condition, and improving in some aspects due to restoration activities.
- The Petroglyph National Recreation Trail is located within the NCA and under continual use by hikers and horseback riders to view the 13th-14th Century pueblo-related Rio Bonito Petroglyph Site. Car counters are planned to better monitor use levels.



John Ganter photodocuments Snowy River passage character in a photo that became widely used by Associated Press.

Land Health Assessments

- A Land Health Assessment has not been completed on the NCA as grazing was discontinued approximately 5 years ago.

Inventory

- 35 miles of cultural resources surveys on trail corridors were conducted in FY 2009.
- The BLM and its partner, Fort Stanton Cave Study Project, have recently documented marks on a ceiling believed to be from a Native American cane torch, wooden remains believed to be from a boat from 1872, and additional enscribed names and dates associated with Fort Stanton military post. Paleontological resources in the vicinity of Don Sawyer Memorial Hall were also discovered, indicating another cave entrance may have existed in the Pleistocene.

Restoration

Several ongoing watershed restoration projects are occurring with the NCA. Projects in FY09 include:

- Juniper thinning, 1,047 acres. Ongoing treatments.
- Tamarisk, Russian olive, and elm control (introduced species), 3 acres. Ongoing treatments.
- Planting of native cottonwood trees and native grasses on 2 acres. Ongoing treatments.
- Installation of five erosion control structures for headcut stabilization.

The goal of these projects are to:

- reduce runoff, erosion, and sedimentation, especially sediment yield to Rio Bonito River.
- improve water infiltration and enhance ground-water recharge
- stabilize soils
- increase herbaceous plant growth and understory vegetation
- meeting the State of New Mexico water quality standards for the Rio Bonito on the Fort Stanton-Snowy River Cave NCA reach
- improve habitat, including reducing undesirable species



National Public Lands Day Fencing Crews

SECTION II - RECREATION FACILITIES, ROADS, AND TRAILS CONDITIONS

Overview

- Administrative buildings. BLM leases a state owned building located on an inholding within the NCA. The building is in poor condition; factors include inferior construction, age, and neglected maintenance. BLM initiated dialog in FY09 with the state to lease another building located on the Fort Stanton State Monument, also an inholding within the NCA. This building will require some modification to meet safety standards and to accommodate the needs of an administrative building, but is in very good condition. The building is located near buildings the state intends to use for visitor contact, and will well serve the needs for a NCA headquarters and quarters for our partner groups.



BLM/State Monument volunteers, 2nd Regt, U.S. Artillery, L-R Sgt. Schermer, Cpl. Dusenberry, Pvt. Pinkston, render honors to the Colors.

- The NCA has 70 miles of non-motorized trails. Approximately 50 % of the trails meet sustainability standards. The remainder of trails are in fair condition. Work is ongoing to upgrade the trail system with an expected completion date of 2012.
- State Highway 380 and County Road 220 are paved roads in excellent condition that pass through the NCA providing primary access to the NCA. These are not under BLM jurisdiction.
- There are 22 miles of BLM administered roads in the NCA

and have been improved to FIMMS Condition 3.

Maintenance

- There is no deferred maintenance backlog at this time. Annual maintenance is meeting the needs to keep the BLM facilities useful to the public.

Signage

- An approved sign plan for Fort Stanton exists. The sign plan will be updated for the NCA designation following the NCA Plan.
- Standard portal signs meeting BLM standards have been installed.
- Existing kiosks do not meet standards.

Section III - Outreach, Environmental Education, Interpretation, and Volunteers

Outreach

- Outreach includes a brochure, websites, kiosks, and onsite presentations prearranged for organizations upon request.
- BLM issued a film permit for Fort Stanton Cave. The cave was featured on a documentary produced by the Discovery Channel and the National Science Foundation

and received technical supported by the NCA's partners including microbiologists Boston and Northup.

- Partner groups assist BLM by providing outreach to area schools.
- The brochure is outdated as it was printed before the NCA designation.
- During caving season (April 15 to November 1) the cave specialist makes personal contact with all visitors through the permit process (243 permits for 1,465 visitors) and provides resource and conservation information.
- Personal contact with the public is made daily by the BLM camp host at the Equestrian Trailhead Parking Area
- Periodic public contacts are made throughout the NCA by a range specialist while maintaining range and wildlife facilities.
- The cave specialist is also a Leave No Trace (LNT) Master Educator and conducts four LNT Trainers Courses annually on the NCA. Each course in FY09 had at least 9 participants for a total of 38. The NCA LNT Trainers Courses included cave environmental education. A Trainers Course based on geocaching was initiated for Scouts and other groups.
- National Public Lands Day events include environmental education presentations.
- Take It Outside programs

Visitor centers

- There is no visitor center for the Fort Stanton – Snowy River Cave NCA. The BLM is currently considering opportunities with New Mexico State Monuments to co-locate visitor contact operations and displays and interpretation within a historic Fort Stanton State Monument building (an inholding to the NCA) which the state is currently renovating.

Environmental education

- The NCA has several partners who periodically participate with the NCA in environmental education presentations and cave trips for schools, Scouts, and other youth organizations.
- The NCA cave specialist, outdoor recreation planner, and wildlife biologists provide environmental education presentations to regional schools.
- The cave specialist, with assistance from the Roswell Field Office Recreation and Cave Program volunteers, periodically conducts environmental education-oriented cave trips in Fort Stanton Cave.

Interpretation

- Cave Conservation
- Tread Lightly and Leave No Trace
- Historic and cultural themes
- When BLM provides public presentations, we always have a large



Trail Crews from YCC and NCCC AmeriCorps constructing trail on the NCA

turnout.

- The website for the Fort Stanton NCA received approximately 2,000 hits in 2009.
- After learning about the resources at Fort Stanton NCA through BLMs interpretive materials, several of the visiting public have returned as volunteers.

Volunteers

The NCA had 22,775 volunteer hours contributed for 3 projects:

- Trail building and maintenance
- Cave exploration and mapping
- Cave restoration

Other Outreach Efforts

- Eco Servants, a locally-based organization, primarily functions in constructing and maintaining trails. They also provide cave environmental education under a group volunteer services agreement with the Roswell Field Office. They are a non-profit 501(c)3 organization and work cooperatively with BLM to provide significant cave environmental education to regional schools through guided trips into Fort Stanton Cave and through presentations at regional schools and organizations. Eco Servants staff are certified Leave No Trace Trainers (certificates from the Leave No Trace Center for Outdoor Ethics, Boulder, Colorado).
- Eco Servants has a special recreation permit to commercially guide paying customers within Fort Stanton Cave. Leave No Trace ethics are taught and exercised by Eco Servants during commercial cave trips. The commercial program remains a small part of the cave visitation in 2009 with only 9 permits issued in 2009 for 4% of the total visitors to Fort Stanton Cave (the total allowable allocation for commercially guided cave visits is 20%). The commercial cave program helps foster appropriate knowledge and use of cave resources and Leave No Trace ethics to visitors who might not otherwise be reached through other efforts.

Section IV - Science

- Bacteriological extremophiles. Dr. Penny Boston, Microbiologist, of New Mexico Tech University/National Cave Karst Research Institute, and doctoral candidates are conducting research of bacteriological extremophiles in isolated environments of the Snowy River passage. 17 previously un-described bacteria species have been discovered. A part of the goals is to better understand unusual organisms for NASA exploration of Mars.
- Cave fungus. Dr. Penny Boston, comprehensive study of all fungal species in Fort Stanton Cave.
- Human impact on caves. Dr. Diana Northup, Microbiologist, University of New Mexico, and graduate students are conducting human impact studies throughout the cave based on DNA sampling.
- Cave dating. Dr. Victor Polyak, Mineralogist, University of New Mexico, and colleagues have pioneered, in Fort Stanton Cave, a physical dating technology of cave formations, similar to tree-ring analysis indicating climate changes during the past 56,000 years. Dr.

Polyak and other geologists have used more traditional geological dating methods to date the cave to at least one million years old, and the Snowy River floor formation at about 810 years and the passage much older – that has not been determined but could be the same age as the more traditional part of the cave.

- Physical and chemical cave properties. Dr. Mike Spilde, Geochemist, University of New Mexico, and graduate students, study of the physical and chemical nature of the Snowy River formation.
- Hydrogeology. Drs. Talon Newton and Lewis Land, hydrogeologists, New Mexico Bureau of Geology & Mineral Resources/National Cave Karst Research Institute, and Knutt Peterson (BLM GIS Specialist and caver), study of the hydrogeology related to the cave paleo-environment.
- BLM Hydrogeologist Michael McGee (RFO). Modeling and monitoring study of



FSCSP member Donald Davis takes water sample from Snowy River during a wet cycle.

groundwater levels and surface water flows in relation to groundwater discharges to Government Springs (headwaters for lower Rio Bonito River) and Crystal Creek Spring (located in the Snowy River passage), in relation to State of New Mexico administered water rights that the BLM uses for beneficial use for irrigation and wildlife and fisheries habitat on the NCA.

Section V - Partnerships

Assistance Agreement with New Mexico Tech

Caves of Mars Project: <http://www.highmars.org/niac/>

SLIME Team website: <http://www.caveslime.org/>

Cave Research Photos: <http://photos.i-pi.com/Caves/>

<http://www.i-pi.com/~diana/slime>

- Cave science activities in the fields of geomicrobiology, geohydrology, geology and mineralogy were accomplished through an assistance agreement with New Mexico Tech University (NMT). NMT in turn, through Doctor Penney Boston, assembled a consortium of scientists from New Mexico Tech, University of New Mexico, the National Cave & Karst Research Institute, and New Mexico Bureau of Geology & Mineral Resources.
- To accomplish various investigations, the cave scientists often involve cavers from BLM's non-profit caving partners: Fort Stanton Cave Study Project, National Speleological Society, Cave Research Foundation or Eco Servants

- This partnership cooperation resulted in Fort Stanton Cave being featured in a Discovery Channel documentary, and also in an upcoming environmental education effort with the National Science Foundation (through the efforts of doctors Boston and Northup).

Fort Stanton Cave Study Project

- Fort Stanton Cave Study Project is non-profit and is working toward becoming a 501(c)3 organization. They are under a group volunteer services agreement with the Roswell Field Office and to document cave resources through exploration, mapping surveys and resource inventories, science, restoration, and photo documentation of Fort Stanton Cave with emphasis on the Snowy River Passage. The study project also accomplishes the same type of work throughout in relation to other caves and karst features throughout the NCA.
- The Study Project has operated in the past under other names but has essentially been involved, under the leadership of John Corcoran, Lee Skinner and several other cavers, with Fort Stanton Cave documentation for over 35 years.
- They are comprised of cavers from the National Speleological Society (NSS) and Cave Research Foundation (CRF). They also assist BLM in cave management efforts through a statewide cave management agreement, which also applies to NSS and CRF.
- Study Project members help cave scientists accomplish work under the NMT Assistance Agreement but do not receive any of that funding.



Cave Program volunteers of Fort Stanton Cave Study Project (FSCSP) using a ground penetrating radar from New Mexico Tech to search for cave passage below.

New Mexico Bureau of Geology & Mineral Resources (<http://geoinfo.nmt.edu/>)

- Established by legislation in 1927 as a research and service division of the New Mexico Institute of Mining and Technology (NM Tech). It is a non-regulatory agency that serves as the geological survey for the State of New Mexico. Through its offices and Web site, its staff serves the diverse population of New Mexico, from elementary students to research and industry scientists.

National Cave and Karst Research Institute (<http://www.nature.nps.gov/nckri>)

The National Cave and Karst Research Institute:

- Advances cave and karst science by conducting, coordinating, and facilitating research.
- Serves as a repository for and provides analysis and synthesis of speleological (cave related) information.
- Fosters partnerships and cooperation in cave and karst research, education, and management programs.
- Promotes and conducts cave and karst educational programs.

- Promotes national and international cooperative programs that further cave and karst research, education, and stewardship.
- Develops and promotes environmentally sound and sustainable cave and karst management practices.

National Speleological Society (<http://www.caves.org>)

- National Speleological Society does more than any other organization to
- Study, explore, and conserve cave and karst resources
- Protect access to caves
- Encourage responsible management of caves and their unique environments
- Promote responsible caving
- Purpose is to promote interest in and to advance in any and all ways the study and science of speleology, the protection of caves and their natural contents, and to promote fellowship among those interested therein.

Cave Research Foundation (www.cave-research.org)

A private, non-profit organization dedicated to:

- Facilitating research, management and interpretation of caves and karst resources
- Forming partnerships to study, protect and preserve cave resources and karst areas
- Promoting the long term conservation of caves and karst ecosystems

Fort Stanton State Monument (<http://www.nmmonuments.org> & <http://www.fortstanton.com/>)

- The New Mexico State Monument system was established on March 14, 1931 by an Act for the Preservation of the Scientific Resources of New Mexico, H.B. No. 124. Section 2 of the Act authorized the Commissioner of the State Land Office, on the recommendation of the Science Commission and with the approval of the Commissioner of Public Lands to "declare by public proclamation that historic and prehistoric structures and other objects of scientific interest that are situated upon the lands owned or controlled by the State of New Mexico, shall be state monuments, and may reserve as a part thereof such parcels of land as may be necessary to the proper care and management of the objects to be protected."
- The Fort Stanton – Snowy River Cave NCA completely surrounds the Fort Stanton State Monument, a largely intact historic frontier fort dating to 1855. The fort contains numerous buildings, in various conditions, and the Roswell Field Office is working with the state to utilize a building for administrative space, hosting events or public meetings, and the potential of sharing visitor contact/visitor display space.
- An annual event, called Fort Stanton Live, centering on the historic fort which includes civil war era reenactments is held at the state monument. The Roswell Field Office signed up various reenactor units in New Mexico to participate in the NCA Celebration; individuals from those units presented the different aspects of pre- during and post-Civil War military and civilians at Fort Stanton. These same units participate as Roswell Field Office volunteers during Fort Stanton Live and arrive "in force."

- While it did not occur during FY09, Friends of Fort Selden have a 5-year special recreation permit to conduct a tactical (war game) on the NCA in the Fort vicinity. These reenactors are subject-matter-experts as to what happened here militarily.

Search & Rescue Teams

- BLM cooperates with the search and rescue teams (especially the regional White Mountain and Alamogordo teams) to help support the capacity for cave rescue in the case of an emergency.
- The Roswell Field Office Cave Specialist coordinates periodic cave rescue training with the search and rescue teams and the partner caving organizations, including the various scientists.
- The White Mountain Search and Rescue Team operates under a statewide MOU with BLM and other agencies. They are based in Ruidoso and can respond to a cave rescue on the NCA within ½-hour. They specialize in Base Camp operations and training with Roswell Field Office will eliminate past command and control issues during any future rescues.



Cave Rescue Training with White Mountain, Alamogordo Search & Rescue teams and cavers

Eco Servants (<http://www.ecoservants.org>)

- Ecoservants is a non-profit organization based in Ruidoso, New Mexico, and is a community service leader that involves the community in a wide variety of projects including light town projects, cave restoration work, and site cleanup. Ecoservants is dedicated to making a cleaner, better, more enjoyable community to live in and be a part of. Ecoservants does not only involve youth, but everyone in the community, to build strong and lasting ties while improving the environment!
- in addition to the description in above
- Involved in environmental education in regional schools in the Eco Mentors Program.
- Commercial caving provides cave and cave ethics interpretation to visitors.
- Provides trail crews from YCC, NCCC AmeriCorps, and Work Force Connection constructing, maintaining, and re-routing trails on the NCA bringing the trail systems up to sustainability standards.

American Endurance Ride Conference (AERC - <http://www.aerc.org>).

- The American Endurance Ride Conference is a nonprofit 501(c)(3) corporation, founded in 1972 as a national governing body for long distance riding. In addition to promoting the sport of endurance riding, the AERC encourages the use, protection, and development of equestrian trails. AERC rides promote awareness of the importance of trail preservation for future generations and foster an appreciation of our American heritage.

- Identifies, marks, and signs trails on the NCA trail system.
- Provides funding for trailhead improvements on the NCA.
- Provides funding for the Trail Master Course held annually at the NCA.
- Course is conducted by Roger Taylor, Southwest AERC Ride Manager

Section VI - Planning and Business Practices

Planning

- The NCA commenced the preparation of a NCA management plan.
- A transportation plan was completed for the NCA prior to its designation as NCA.

New units

- Fort Stanton-Snowy River Cave National Conservation Area organizational code: LLNMP01400

Budget Summary

- Permanent staff
 - Outdoor Recreation Planner: 12 work months
 - Outdoor Recreation Planner: 6 months

Manager's Corner

- The Roswell Field Office sponsors and adheres to trailmaster building ethics and standards and instructs interagency personnel, trail crews, and supervisors in sustainable standards.